

A. COVER SHEET – CALFED BAY-DELTA PROPOSAL

1. CALFED BAY-DELTA Program

Landscape Funding Proposal Draft Dated ---- 02/10/2001

2. Proposal Title –

CALFED Partnering With Industry; Enlisting and Nurturing Manufacturers and Distributors to Create, Combine, and Market New Conservation-Sensitive Irrigation and Lawn Chemical Technologies

3. Principal applicant:

Underhill International Corporation

4. Contact:

Gary Underhill

5. Mailing address:

430 Forest Ave

Laguna Beach, CA 92651

6. Telephone:

949-494-7756

7. Fax:

949-494-7886

8. E-mail

Underhill@uicorp.net

9. Funds Requested: \$199,000 over three years

10. Applicant cost share funds pledged – dollar amount: none

None

11. Duration –

Phase One: June 1, 2001 to November 30, 2001 – Industry Awareness & Proposal Solicitation

Phase Two: December 1, 2001 through June 1, 2004 – Industry Proposal Comments and Reviews

Phase Three: January 1, 2003 through January 1, 2003 – Consumer Marketing Program Development

12. State Assembly and Senate districts and Congressional district(s) where the project is to be conducted: All relevant districts within California

13. Location and geographic boundaries of the project:

Same as item 12 above

14. Name and signature of official representing applicant. By signing below, the applicant declares the following:

----- the truthfulness of all representations in the proposal;

----- the individual signing the form is authorized to submit the application on behalf of the applicant;

----- the applicant will comply with the contract terms and conditions identified in Section 11 of this PSP

Gary Underhill

B. Scope of work

Relevance and Importance

1. Abstract (Executive Summary)
Project description –

This project is to create awareness within the irrigation and lawn chemical industries of CALFED objectives and procedures, and to solicit industry participation.

It is important to understand that it generally costs more to implement the acceptance of new technologies than it does to create the new technologies. This proposal is to seek capable industry product and market development partners for CALFED, and to help refine and verify the partners' creations through CALFED funding of field implementation. CALFED could in effect be a virtual venture capital partner with industry by fostering promising product and market development activities.

Homeowners and landscape managers are often indifferent to conservation issues. There are just too many other life distractions. Although the public at large can benefit tremendously from conservation, the individual economic and other direct incentives to save are too small and remote to for most people to worry about.

A major proportion of CALFED investment ultimately must be directed toward overcoming marketing inertia. The specifics of what and how to do it are less critical than attaining industry awareness and involvement. With the opportunity for profit, involvement and new creative and practical solutions will come.

From a technical perspective the problem is clear. Excess irrigation results in leaching and deep percolation of water and chemicals. **Percolation losses greatly exceed surface runoff, but are less visible to the public. Fortunately, technical solutions are available and more can be fostered.** For example, it is now possible to creatively combine slow-release fertilizers, satellite communications, ET-based controls, soil moisture sensors, inexpensive redundant radio-linked water meters, satellite imagery, web and e-mail communications, and other new technologies, to mitigate deep-percolation and run-off losses.

Unfortunately, irrigation and landscape fertilizer companies are typically small and closely held. For perspective, it is interesting to note that most of the larger companies in the industry, if publicly traded, would not exceed small-cap proportions. If consolidated, the entire industry would be in the magnitude of a mid-cap publicly traded company.

Nevertheless, the industry has developed many new products that have the potential to solve big conservation problems. Such products are typically pushed through distribution channels to contractors via distributors. These channels do not have the means to overcome the marketing inertia required to get consumer acceptance of new products, concepts, and conservation practices. Conservation promotion must compete with massive consumer product promotions for attention. More dollars are spent promoting a single new movie than is affordable by industry to promote conservation.

2. Critical Issues
- A. **Identification of existing practical technologies** to employ such as:
 - Slow-release fertilizers – blends, application rates, release curves, frequency
 - Irrigation controllers – automated seasonal adjustments & zone balancing,
 - Irrigation water meters – cost, accuracy, monitoring, controller feedback
 - Water allowances – satellite scanning of landscaped areas to determine allowed demand
 - Automatic identification of uniformity shortcoming
 - Correction of system shortcomings
 - B. **Evaluation and verification** of the technology options
 - CALFED financial support of multiple proposals
 - On-going significant field implementation trials
 - C. **Solicitation of promising industry proposals for:**
 - New product R & D
 - Manufacturing
 - Tooling
 - Machinery
 - Marketing
 - Create the need.
 - Distribution channels
 - Monitor results
 - Intensive monitoring of selected benchmark sites
 - Soil sensors
 - Meters
 - Personal visits
 - Extensive comparisons to benchmark sites
 - Feedback – web, e-mails, statements
 - Homeowners
 - Districts
 - D. **Modify programs continually**

3. Nature, scope, and objectives of the project

Phase I of this proposal is to:

1. Create irrigation and chemical industry management awareness of:
 - a. CALFED objectives
 - b. How to get started with proposals
 - c. How to do profitable business with CALFED and related agencies
2. Foster partnerships between public and private entities

Phase II of this proposal is for:

1. Review of promising industry proposals for products and services to implement in 2001 and 2002 for:
 - a. Hardware, software, and services
 - b. Implementation in reasonable scale; (i.e. more than tests)
 - c. Combination of technologies (e.g. ET controls and slow-release fertilizers)
 - d. Purchases by CALFED in economic lot size quantities
2. Review of products development funding for
 - a. Design
 - b. Tooling
 - c. Manufacturing
 - d. Marketing
3. Review of field verification programs for:
 - a. Products
 - b. Delivery channels
 - c. Installation
 - d. Monitoring

Phase III of this proposal is for:

1. Participation with CALFED to solicit major consumer marketing/outreach program proposals from third-party sources for
 - a. Incentives
 - b. Promotion
 - c. Media advertising

Behavior modification verification

4. Methods, procedures and facilities

Phase I. –

Industry awareness –

All members of the Irrigation Association and all known lawn chemical and slow-release fertilizer manufacturers will be contacted and invited to attend any one of small-group workshops in California or during the IA annual tradeshow in San Antonio in November 2001. Sufficient workshops will be scheduled to allow active participation and discussion and will be limited to not more than ten people at a time. The CALFED objectives and proposal procedures will be explained. CALFED assistance will be offered in preparing proposals. Industry will be encouraged to submit individual and joint proposals to enhance, develop, and market new water conservation technologies.

Phase II –

Comments on promising industry proposals --

Panels of senior active or retired industry executives will be assembled to comment on industry proposals. Comments will be accompanied with disclosures of possible conflicts of interest.

Phase III –

Marketing Implementation –

A panel of five senior consumer-marketing executives will be assembled to provide inputs on possible market development programs and to suggest means to solicit, develop, and implement programs.

4. Schedule:

Phase One:	June 1, 2001 to November 30, 2001 – Industry Awareness & Proposal Solicitation
Phase Two:	November 1, 2001 through June 1, 2004 – Industry Proposal Comments and Reviews
Phase Three:	January 1, 2003 through January 1, 2003 – Consumer Marketing Program Development

5. Monitoring and Assessment
Monthly and other required reports to be submitted by E-mail along with a progress summary.

C. Outreach, community involvement, and information transfer

None except industry awareness is contemplated within this proposal. Part III of the proposal is to involve major consumer product marketers to develop implementation outreach programs.

D. Qualifications of the applicants, cooperators, and establishment of partnerships

1. Resume of project management

Underhill International Corporation. (UI)

Founded – 1980; 10 employees

UI Principal activities –

Pivot-Alert -- Utilizing software, firmware, and electronics sub-contractors, UI developed and has marketed since 1996 its proprietary Pivot-Alert product line. Several hundred systems are operating on field crops in Kansas and New Mexico. Pivot-Alert controls, monitors, notifies and calculates ET requirements based on the same variables that are required for any irrigation system.

Distributed Products – In addition to Pivot-Alert, UI offers complete ranges of agricultural and landscape irrigation equipment worldwide. These products are manufactured by approximately 30 U.S. and international independent irrigation manufacturers and are sold to approximately 200 customers in 70 countries.

Key personnel have BS, MS, BA, MBA business, science, and/or agricultural degrees. Software and firmware key sub-contractors have BS, MS degrees in EE and computer sciences.

A review of UI distributed and proprietary products and a Pivot-Alert Power Point presentation can be viewed on our web site www.uicorp.net.

UI staff will conduct the project.

Resume of Gary Underhill

1954-1959

BS Geology University of Kansas

Navy Scholarship

1959-1962

U.S. Navy line officer

Engineering, deck and gunnery department head USS Whitfield County

1962-1964

MBA

Stanford University

1964-1980 Rain Bird Sprinkler Manufacturing

Vice President U.S. & International Marketing

1980 to present

Underhill International Corporation

References:

Dr. Jack Keller, Keller-Bliesner Engineering, Logan, Utah

Richard Wenstrom, Kinsley, Kansas farmer and irrigation consultant

Joe Lord, JM Lord, Inc, Fresno, CA

2. External cooperators

None

3. Partnerships for implementation

None

E. Costs and Benefits

1. Budget summary and breakdown

This is a fixed fee proposal plus out-of-pocket expenses for travel and engagement of consultants as approved by CALFED at cost plus 20%.

- a. Salaries and Wages - Fixed fees \$4,000 monthly for three years - \$144,000
- b. Fringe Benefits -Included
- c. Supplies - Included
- d. Equipment - Included
- e. Services of consultants – Estimated \$15,000
- f. Travel – Estimated \$25,000
- g. Other direct costs - \$15,000
- h. Total estimated costs – \$199,000

2. Budget justification –

The costs include management, office support and indirect expenses based on an estimated average of three and one-half key staff member days per month required executing.

3. Benefit summary and breakdown

a. Quantify project outcomes and benefits –

The project outcome can best be measured by how many acceptable proposals come from industry. The estimated economics per household is contained in the Excel worksheet herein (also provided on disk).

The present value per home of the water savings is about \$815. The cost to install automatically adjusting controllers, irrigation water meters, installation, and to supply each home with a 50 LB bag of slow-release fertilizer is about \$350. Assuming a 15 equipment life at a 6% discount rate, the net present value of the investment is \$465. The savings per year per home are approximately \$85. This \$85 per year is probably not enough motivation to encourage homeowners to change. It is not possible to quantify the economic cost of water pollution due to deep percolation, but it probably exceeds the water costs substantially.

The equipment start-up costs will probably need to be entirely paid by CALFED backed by substantial consumer awareness campaigns.

b. Non-quantifiable project outcomes and benefits-

It is not within the scope of work to attempt to quantify the environmental benefits except to provide the means to allow others to assign an environmental benefit to total applied water savings within a district expressed in \$/AF saved.

4. Assessment of costs and benefits

See a. above.

F. Matching funds Commitment Letter

None

G. Letter of Concurrence from Local Government

Not applicable

H. Environmental Documentation

Not applicable

11. Contract terms and conditions

There are no contract terms that appear to be objectionable to the applicant. Payment terms shall include monthly payments as negotiated. Either party without cause upon 180 days notice may terminate the contract. UI shall be free to submit independent as well as joint proposals with other industry members and shall make full disclosure of this to industry participants.